

# ICC-ES Evaluation Report

ESR-4106

Reissued October 2023


This report also contains:

**CRC Supplement**

Subject to renewal October 2024

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<p><b>DIVISION: 03 00 00 - CONCRETE</b></p> <p><b>Section: 03 11 19 – Insulating Concrete Forming</b></p>	<p><b>REPORT HOLDER: MONO SLAB® EZ FORM</b></p>	<p><b>EVALUATION SUBJECT: MONO SLAB® EZ FORM—FROST PROTECTED SHALLOW FOUNDATION FORMING SYSTEM</b></p>	
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## 1.0 EVALUATION SCOPE

### 1.1 Compliance with the following codes:

- 2021, 2018, 2015 and 2012 [International Residential Code® \(IRC\)](#)
- 2021, 2018, 2015 and 2012 [International Energy Conservation Code® \(IECC\)](#)

### Property evaluated:

- Physical properties
- Surface-burning characteristics
- Thermal resistance

### 1.2 Evaluation to the following green code(s) and/or standards:

- 2020, 2015 and 2012 ICC 700 [National Green Building Standard™](#) (ICC 700-2020, ICC 700-2015 and ICC 700-2012)

## 2.0 USES

Mono Slab® EZ Form—Frost Protected Shallow Foundation Forming System is nonstructural stay-in-place expanded polystyrene insulation concrete forming system used to construct frost-protected shallow concrete footings, slabs-on-grade, or suspended floor foundations for heated, unheated, and semi-heated structures. The forms remain in place after placement and curing of concrete to provide vertical and horizontal frost protection in accordance with IRC Section R403.3. Mono Slab EZ Form – Frost Protected Shallow Foundation Forming System may also be used as perimeter insulation in accordance with 2021 IECC Sections C402.2.4 and R402.2.9 [2018 and 2015 IECC Sections C402.2.4 and R402.2.10 (2012 IECC Sections C402.2.6 and R402.2.9)].

## 3.0 DESCRIPTION

### 3.1 General:

Mono Slab® EZ Form—Frost Protected Shallow Foundation Forming System consists of exterior and interior wedge shaped expanded polystyrene forms. Interior forms are used to construct concrete footings. The exterior wedge-shaped forms are available in three different styles, Standard (S1616-S), Arctic (A1830-S), and Commercial (C2424-S). See [Table 1](#) for dimensions. The exterior forms have a pre-formed slot to accommodate a nominal 2-by-8 wood board 8 feet long (2438 mm) used to interlock forms.

The attributes of the Mono Slab® EZ Form – Frost Protected Shallow Foundation Forming System have been verified as conforming to the provisions of (i) ICC-700-2020, ICC 700-2015 and ICC 700-2012 Section 601.8. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the

project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

### 3.2 Foam Plastic Material:

The Mono Slab<sup>®</sup> EZ Forms are manufactured using BVPV Styrenics LLC's expanded polystyrene beads listed in [ESR-1798](#). The foam plastic forms are Type I complying with ASTM C578 and have a minimum density of 0.9 pcf (15 kg/m<sup>3</sup>). The foam plastic has a flame-spread index of 25 or less, and a smoke-developed index of 450 or less at a maximum thickness of 5 inches (127 mm), when tested in accordance with ASTM E84 or UL723.

### 3.3 Thermal Resistance:

The Mono Slab<sup>®</sup> EZ Forms have a nominal thermal resistance (R-value) at a mean temperature of 75°F (24°C) as shown in [Table 2](#). Linear interpolation is used to determine the thickness at any point between the top and bottom, as shown in [Figure 1](#) and [Table 3](#).

## 4.0 DESIGN AND INSTALLATION

Mono Slab<sup>®</sup> EZ Forms—Frost Protected Shallow Foundation Forming System must be installed in accordance with IRC Section R403.3, the report holder's published installation instructions and this report. The report holder's published installation instructions and this report must be strictly adhered to, and a copy of the instructions must be available at the jobsite at all times. Footings and foundations must be designed and constructed in accordance with IRC Chapter 4.

Installation of the Mono Slab<sup>®</sup> EZ Forms—Frost Protected Shallow Foundation Forming System must start at one of the footing or foundation corners. A minimum of 16 inches (406 mm) of exterior Mono Slab<sup>®</sup> EZ Forms must be placed along intersecting walls. The forms must extend beyond the foundation perimeter of one intersecting wall. The extended portion must be removed prior to backfilling. A small slot must be cut into the extend form to accommodate a nominal 2-by-8 wood board. The Mono Slab<sup>®</sup> forms are then connected by placing nominal 2-by-8 wood boards 8 feet long (2438 mm) into pre-formed slots. Wood boards must be staggered at form seams. The wood boards must be butted tightly against each other. At the corner, the wood board must be fastened together at corners with two minimum No. 8 by 3-inch- long corrosion resistance screws (see [Figures 2](#) and [3](#)).

Exterior forms must be secured in place with nominal 1-by-2 wood stakes 24 inches (610 mm) long, placed 4 feet (1219 mm) on center along the perimeter. Mono Slab<sup>®</sup> EZ forms are placed along the perimeter walls, and connected by placing nominal 2-by-8 wood boards 8 feet (2438 mm) long into the pre-formed slots. Exterior forms must be backfilled prior to concrete pour. After concrete curing, the wood boards may be removed and replaced with the Mono Slab<sup>®</sup> 2-by-8 EPS filler piece.

For footing construction, interior Mono Slab<sup>®</sup> Forms are placed along the interior wall and must be secured in place with two nominal 1-by-2 wood stakes 18 inches (457 mm) long in each form on the back side. The interior side must be backfilled along the back side prior to concrete placement.

Mono Slab<sup>®</sup> EZ Forms may be used in unheated and semi-heated structures when designed in accordance with IRC Section R403.1.1. See [Figure 4](#).

## 5.0 CONDITIONS OF USE:

The Mono Slab<sup>®</sup> EZ Form—Frost Protected Shallow Foundation Forming System described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation must comply with this report and the report holder's published installation instructions, and the applicable code. In the event of conflict between the published installation instructions and this report, this report governs.
- 5.2 Footing depth must be a minimum 12 inches (305 mm) below ground surface.
- 5.3 The maximum vertical and horizontal effective thermal resistance must be used to determine minimum footing depth in accordance with Table R403.3 (1).
- 5.4 Horizontal insulation must be installed and designed in accordance with IRC R403.3 and Table R403.3 (1).
- 5.5 Mono Slab EZ<sup>®</sup> Forms must have a protective covering to prevent degradation of the forms in accordance with IRC Sections R403.3.2 and N1101.11.1.
- 5.6 Mono Slab<sup>®</sup> EZ Form—Frost Protected Shallow Foundation Forming System must not be used where structural foundation loads are supported.

- 5.7 Use of the Mono Slab<sup>®</sup> EZ Form—Frost Protected Shallow Foundation Forming System in areas where the probability of termite infestation is “very heavy” must be in accordance with IRC Section R318.4. Areas of “very heavy” termite infestation must be determined in accordance with IRC Figure R301.2 (6).
- 5.8 The Mono Slab<sup>®</sup> EZ Form—Frost Protected Shallow Foundation Forming System is produced under a quality control program with inspections by ICC-ES.

## 6.0 EVIDENCE SUBMITTED

Data in accordance with the [ICC-ES Acceptance Criteria for Foam Plastic Insulation \(AC12\)](#), dated June 2015 (editorially revised May 2020).

## 7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of electronic labeling, or the evaluation report number (ICC-ES ESR-4106) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- 7.2 In addition, the Mono Slab<sup>®</sup> EZ Form Forming System must bear a label with the product name; the manufacturing facility location; the date of manufacture; the density; the flame-spread index; the smoke-developed index; ASTM C578; and the evaluation report number (ESR-4106).
- 7.3 The report holder’s contact information is the following:

**MONO SLAB<sup>®</sup> EZ FORM**  
**4126 QUAKIE LANE**  
**ISLAND PARK, IDAHO 83429**  
**(208) 521-0461**  
[www.monoslabezform.com](http://www.monoslabezform.com)

**TABLE 1 – MONO SLAB<sup>®</sup> EZ FORM PROFILE DIMENSIONS**

MONO SLAB EZ FORM	DIMENSIONS
Interior Forms	8 feet long x 10 inches high x 12 inches wide
	8 feet long x 16 inches high x 18 inches wide
Mini Form	8 feet long x 12 inches high x 12 inches wide
Standard Form (S-1616)-S	8 feet long x 16 inches high x 16 inches wide
Arctic Form (A-1830-S)	8 feet long x 18 inches high x 30 inches wide
Commercial Form (C-2424-S)	8 inches long x 24 inches high x 24 inches high

For SI: 1 inch = 25.4 mm

**TABLE 2— MONO SLAB<sup>®</sup> EZ FORM PROPERTIES**

EPS TYPE	R-VALUE per inch	EFFECTIVE RESISTIVITY, $r_{eff}$ (per Inch)	
		Vertical	Horizontal
Type I	3.6	2.9	2.3
Type II	4.0	3.2	2.6

For SI: 1 inch = 25.4 mm,  $R = °F \cdot ft^2 \cdot h / Btu$

TABLE 3 – MONO-SLAB® EZ FORM HORIZONTAL R-VALUES

Horizontal Inch Increments	Horizontal Insulation R-Values (Type I EPS Forms)					
	Standard Form (S-1616)-S		Arctic Form (A-1830-S)		Commercial Form (C-2424-S)	
	R-Value per inch	Effective Resistivity, $r_{eff}$ per inch	R-Value per inch	Effective Resistivity, $r_{eff}$ per inch	R-Value per inch	Effective Resistivity, $r_{eff}$ per inch
1	57.6	36.8	64.8	41.4	86.4	55.2
2	54.0	34.5	61.2	39.1	82.8	52.9
3	50.4	32.2	57.6	36.8	79.2	50.6
4	46.8	29.9	54.0	34.5	75.6	48.3
5	43.2	27.6	50.4	32.2	72.0	46.0
6	39.6	25.3	46.8	29.9	68.4	43.7
7	36.0	23.0	43.2	27.6	64.8	41.4
8	32.4	20.7	39.6	25.3	61.2	39.1
9	28.8	18.4	36.0	23.0	57.6	36.8
10	25.2	16.10	32.4	20.7	54.0	34.5
11	21.6	13.8	28.8	18.4	50.4	32.2
12	18.0	11.5	25.2	16.1	46.8	29.9
13	14.4	9.2	21.6	13.8	43.2	27.6
14	10.8	6.9	18.0	11.5	39.6	25.3
15	7.2	4.6	14.4	9.2	36.0	23.0
16	3.6	2.3	10.8	6.9	32.4	20.7
17	NA	NA	7.2	4.6	28.8	18.4
18	NA	NA	3.6	2.3	25.2	16.1
19	NA	NA	NA	NA	21.6	13.8
20	NA	NA	NA	NA	18.0	11.5
21	NA	NA	NA	NA	14.4	9.2
22	NA	NA	NA	NA	10.8	6.9
23	NA	NA	NA	NA	7.2	4.6
24	NA	NA	NA	NA	3.6	2.3

For SI: 1 inch = 25.4 mm, R=°F.ft².h/Btu

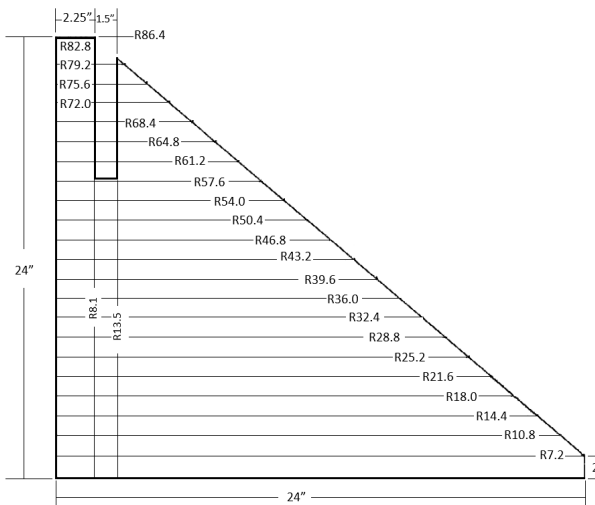
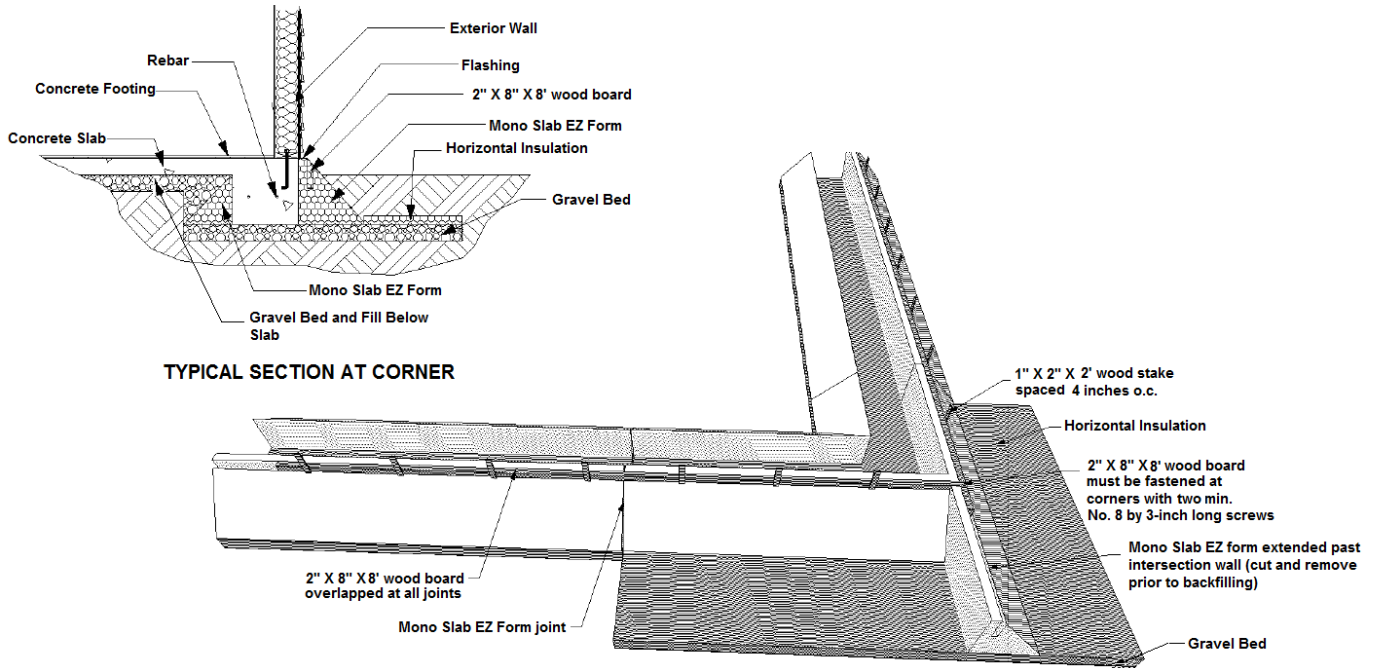
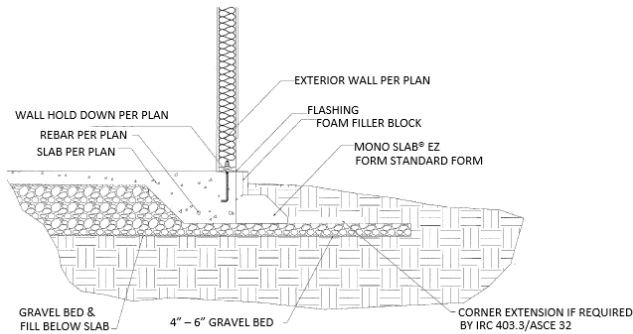


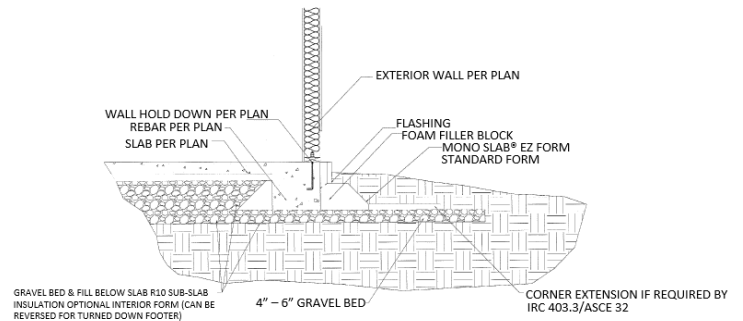
FIGURE 1 – NOMINAL R-VALUES FOR MONO SLAB COMMERCIAL FORM



**FIGURE 2—MONO SLAB<sup>®</sup> EZ FORM SHALLOW FROST PROTECTED FORMING SYSTEM FOOTING AND SLAB CORNER INSTALLATION**



**FIGURE 3 – HEATED SPACES INSTALLATION**



**FIGURE 4 –UNHEATED SPACES INSTALLATION**

DIVISION: 03 00 00—CONCRETE

Section: 03 11 19—Insulating Concrete Forming

REPORT HOLDER:

MONO SLAB® EZ FORM

EVALUATION SUBJECT:

MONO SLAB® EZ FORM—FROST PROTECTED SHALLOW FOUNDATION FORMING SYSTEM

## 1.0 REPORT PURPOSE AND SCOPE

### Purpose:

The purpose of this evaluation report supplement is to indicate that the Mono Slab® EZ Form—Frost Protected Shallow Foundation Forming System, described in ICC-ES evaluation report ESR-4106, has also been evaluated for compliance with the code noted below.

### Applicable code edition:

2016 *California Residential Code* (CRC)

## 2.0 CONCLUSIONS

The Mono Slab® EZ Form—Frost Protected Shallow Foundation Forming System, described in Sections 2.0 through 7.0 of the main evaluation report ESR-4106, complies with CRC Chapters 3 and 4, provided the design and installation are in accordance with the *International Residential Code*® (IRC) provisions noted in the evaluation report.

This supplement expires concurrently with the evaluation report, reissued October 2023.